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EXAMINER

LU, ZHIYU

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/817,094	Applicant(s) GAIKWAD ET AL.	
	Examiner ZHIYU LU	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 06/29/2009 have been fully considered but they are not persuasive.

Regarding rejections on claims 1, 15 and 23, applicants argued that Su does not teach adjusting operation of a receiver based on multiple power measurements. Applicants also argued that the setpoint of Adams is not the same as claimed threshold in claims 1, 5, 19 and 22 and "affine" claimed in claims 6 and 20 is nowhere to be found in Bednekoff.

However, the Examiner does not agree. Despite applicants' argument, the claims lack limitations to differentiate themselves from prior arts. Su discloses calibration where multiple signal power measurements are taken in determining different attenuators (column 7 lines 45-66). And, the transceiver of Su is equipped to control the gains of both the receive and transmit paths as well as the transmitter power level based on results of calibration (Gain Control & Offset Control of Fig. 6, column 2 lines 24-49, column 9 lines 58-65), which would have been obvious to one of ordinary skill in the art to recognize that the power measurements results during Su's calibration eventually leads to adjusting the operation of the receiver for the objective of Su in maintaining both transmit and receive communication qualities. Thus, Su does teach the argued limitation. Furthermore, claims 15 and 23 are even broader than claim 1, which means Su covers the claim limitation as long as the RSSI changes (column 7 line 66 to column 8 line 17).

In claims 1, 5, 19 and 22, Applicants' argument on differentiating setpoint and threshold is not persuasive because the argument is based on intended-use details of threshold which is not

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limited in claims. In opposite to applicants' definition on "threshold - limiting value of some variable of interest", a dictionary definition is "the starting point for a new state". So, "threshold" is a region marking a boundary, by dictionary definition. And the setpoint of Adams is set as a boundary marking to compare with received signal strength measurement. In instant application, threshold is used the same for comparison. So, setpoint of Adams and threshold of instant application are obviously considered as the usage as marking a boundary, for comparison with received signal measurement.

In claims 6 and 20, without any further clarification or limitation, "an affine function" is interpreted as a coordination or transformation relationship. And the Bednekoff's look-up table in RSSI calibration obviously includes a coordination or transformation relationship among the parameters of the look-up table. Thus, one of ordinary skill in the art would have obviously recognized the look-up table for RSSI calibration of Bednekoff to be an improvement to incorporate into the system of Su and Adams, in order to provide coordinated adjustments.

Thus, the rejections are proper and maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1-5, 10, 12, 14-19, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent#6272322) in view of Adams et al. (US Patent#7212798).

Regarding claim 1, Su teaches a method of operating a radio frequency communication system having a receiver portion circuitry, the method comprising:

arranging the transmitter portion in a first transmitter configuration (P1 on) and the receiver portion in a first receiver configuration (Q1 off, Fig. 3, column 7 lines 45-59);

take a first signal power measurement(column 7 lines 45-59);

configuring the transmitter portion in a second transmitter configuration (P1 off) and the receiver portion in a second receiver configuration (Q1 on), wherein the first transmitter configuration is different than the second transmitter configuration and the first receiver configuration is different than the second receiver configuration (column 7 lines 60-65);

performing a second signal power measurement (column 7 lines 60-65); and

adjusting the operation of the receiver portion based upon the first signal power measurement and the second signal power measurement (column 7 line 66 to column 8 line 17, where determined attenuators are used in calibrate/adjust operation of receiver; column 2 lines 24-49, column 9 lines 58-65, where measurement results during calibration eventually lead to adjusting receiver operation).

But, Su does not expressly disclose wherein the adjusting comprises modifying at least one threshold related to processing of receive signal strength indicator data used in the operation of the radio frequency communication system.

Adams et al. teach a RF communication system calibrates transmitter and/or receiver based on measurements of receive signal strength indicator (Fig. 6, column 4 line 46 to column 5 line 48,

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column 8 lines 48-61, column 11 lines 8-13), wherein RSSI setpoint is adjusted based on measurements (column 11 line 60 to column 13 line 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate adjusting RSSI setpoint with received signal strength measurements taught by Adams et al. into the method of Su, in order to correct desired signal strength level.

Regarding claim 15, Su and Black et al. teach a radio frequency communication system as explained in response to claim 1 above, wherein Su teaches

transmitter circuitry (603 of Fig. 6) for generating a radio frequency signal, the output of the transmitter circuitry coupled to at least one antenna (Antenna of Fig. 6);

switching circuitry (102 of Fig. 6) having an input coupled to the at least one antenna, an output, and at least a first mode and a second mode of operation (receiving mode and transmitting mode), the first mode of switching circuitry passing a signal from the input to the output with relatively lower level of attenuation, and the second mode of the switching circuitry passing a signal from the input to the output with a relatively higher level of attenuation (Fig. 3, column 7 lines 60-65, wherein attenuator P1 or Q1 obviously considered as part of switching mode, and attenuator on/off mode produces high/low attenuation in calibration);

receiver circuitry (602 of Fig. 6) for accepting a radio frequency signal from the output of the switching circuitry, the receiver circuitry producing at least a receive signal power measurement (column 7 lines 60-65); and

the radio frequency communication system adjusting at least one characteristic of the receive signal power based on two signal power measurements using the switching circuitry and

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the transmitter circuitry (column 7 lines 46-65, wherein loopback calibration uses switch and transmitter; column 7 line 66 to column 8 line 17, wherein calibration changes receive signal power).

But, Su does not expressly disclose using receive signal strength indicator for signal power measurement.

Adams et al. teach a RF communication system calibrates transmitter and/or receiver based on measurements of receive signal strength indicator (Fig. 6, column 4 line 46 to column 5 line 48, column 8 lines 48-61, column 11 lines 8-13), wherein RSSI setpoints are adjusted based on measurements (column 11 line 60 to column 13 line 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using receive signal strength indicator taught by Adams et al. into the radio frequency communication system of Su for power measurement parameter.

Regarding claim 23, Su and Adams et al. teach a radio frequency communication system as explained in response to claim 15 above.

Regarding claims 2 and 16, Su and Adams et al. teach the limitations of claims 1 and 15.

Su teaches the arranging, taking, configuring, performing, and adjusting occur on a periodic basis (column 4 lines 16-19).

Regarding claims 3 and 17, Su and Adams et al. teach the limitations of claims 1 and 15.

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Su teaches the radio frequency communication system communicates digital information (Fig. 6).

Regarding claims 4 and 18, Su and Adams et al. teach the limitations of claims 1 and 15.

Adams et al. teach the receiver portion and the transmitter portion are located within the same integrated circuit (Fig. 4, column 7 lines 31-33).

Regarding claims 5 and 19, Su and Adams et al. teach the limitations of claims 1 and 15.

Adams et al. teach wherein the at least one characteristic comprises at least one of a slope and a fixed offset of the receive signal strength indicator (column 13 lines 53-67, setpoint error).

Regarding claim 10, Su and Adams et al. teach the limitation of claim 1.

Su teaches wherein the arranging provides a relatively lower level of radio frequency signal to the receiver portion (Fig. 3, having attenuation with P1 or Q1 on).

Regarding claim 12, Su and Adams et al. teach the limitation of claim 1.

Su teach wherein the configuring provides a relatively higher level of radio frequency signal to the receiver portion (Fig 3, no attenuation with P1 or Q1 off).

Regarding claim 14, Su and Adams et al. teach the limitation of claim 1.

Su and Adams et al. teach further comprising: adjusting the operation of the transmitter portion based upon the first signal power measurement and the second signal power measurement

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(column 7 line 66 to column 8 line 17, where determined attenuators are used in calibrate/adjust operation of transmitter)

Regarding claim 22, Su and Adams et al. teach the limitation of claim 15.

Adams et al. teach wherein the adjusting comprises modifying at least one threshold related to receive signal strength indicator data used in the operation of the radio frequency communication system (column 11 line 60 to column 12 line 11, column 13 lines 53-67, adjust RSSI setpoints).

3. Claims 6-7 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent#6272322) in view of Adams et al. (US Patent#7212798) and Bednekoff et al. (US Patent#6603810).

Regarding claims 6 and 20, Su and Adams et al. teach the limitations of claims 1 and 15.

But, Su and Adams et al. do not expressly disclose the adjusting further comprises modifying the value of a receive signal strength indicator using an affine function.

Bednekoff et al. teach a receiver calibrating method that adjusts RSSI value using RSSI correction factors according a look-up table, where affine or coordinated relationships are involved therein (column 7 lines 9-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using adjusting RSSI value with affine function taught by Bednekoff et al. into the method of Su and Adams et al., in order to provide coordinated RSSI adjustment to the receiver.

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Regarding claims 7 and 21, Su, Adams et al., and Bednekoff et al. teach the limitations of claims 6 and 20.

Su, Adams et al., and Bednekoff et al. teach wherein the affine function is implemented using a look-up table (column 7 lines 9-60 of Bednekoff et al.).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent#6272322) in view of Adams et al. (US Patent#7212798) and Johnson (US Patent#6704352).

Regarding claim 9, Su and Adams et al. teach the limitation of claim 1.

Su and Adams et al. teach wherein the adjusting comprises modifying at least one of a receive signal strength indicator slope and a receive signal strength indicator fixed offset, but Su and Adams et al. do not expressly disclose being in an analog receive signal strength indicator circuit.

Johnson teaches a receiver calibrating method that comprises calibrating at least one of the slope and the fixed offset of a receive signal strength indicator (column 1 lines 37-62, column 3 line 23 to column 4 line 27, column 10 lines 12-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate details of calibrating receiver gain taught by Johnson into the method and system of Su and Adams et al., in order to provide appropriate adjustment to RSSI over time.

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5. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent#6272322) in view of Adams et al. (US Patent#7212798) and Kim (US Patent#5999803)

Regarding claim 11, Su and Adams et al. teach the limitation of claim 10.

But, Su and Adams et al. do not expressly disclose wherein the relatively lower level of radio frequency signal corresponds to a signal power of less than approximately -90 dBm.

Kim teaches wherein the relatively lower level of radio frequency signal corresponds to a signal power of less than approximately -90 dBm (column 2 lines 27-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having the relatively lower level of radio frequency signal corresponds to a signal power of less than approximately -90 dBm taught by Kim into the method of Su and Adams et al. for ranging RSSI detection by design preference.

Regarding claim 13, Su and Adams et al. teach the limitation of claim 12.

But, Su and Adams et al. do not expressly disclose wherein the relatively higher level of radio frequency signal corresponds to a signal power of greater than approximately -30dBm.

Kim teaches wherein the relatively higher level of radio frequency signal corresponds to a signal power of greater than approximately -30 dBm (column 2 lines 27-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having the relatively higher level of radio frequency signal corresponds to a signal power of greater than approximately -30 dBm taught by Kim into the method of Su and Adams et al. for ranging RSSI detection by design preference.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHIYU LU whose telephone number is (571)272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu
Examiner
Art Unit 2618

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Examiner, Art Unit 2618
November 5, 2009

/Duc Nguyen/
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